

REMARKS

Claims 1, 2, 4-9 and 11-16 remain in this application. Claims 1-16 are rejected. Claims 3 and 10 are cancelled herein. Claims 1, 4-6, 8, 11-13, 15 and 16 are amended herein to clarify the invention and to address matters of form unrelated to substantive patentability issues.

Applicant herein traverses and respectfully requests reconsideration of the rejection of the claims cited in the above-referenced Office Action.

The applicant and applicant's attorney appreciate the granting of the telephone interview by the Examiner and his Supervisor conducted on February 23, 2004, and extend their thanks to them for their time and consideration. While no formal agreement was reached, applicant's counsel advised that new and amended drawings were to be submitted that would clarify the patentably distinct feature of the invention by which a determination is made regarding which pixels of a solid object corresponding to a front-facing polygon of a shadow model will express a cast shadow, and which pixels will represent a portion which does not have such a shadow. Namely, if a distance from a viewpoint to a rear-facing polygon of the shadow model is smaller than a Z-value of a pixel, the pixel will not be representative of a shadow pixel. Applicant's believe that the amendments to the claims, as explained in the remarks below, will make clear the patentable distinctions of the

claimed invention over the cited art of record, particularly in light of the amended figures.

The Examiner objects to the drawings under 37 C.F.R. § 1.83(a) for failing to show the viewpoint of the virtual camera as described in the specification. The attached sheet of drawings replaces the original sheet including Fig. 4, and corrects Fig. 4 to accurately show a leading edge of the cast shadow on plane P as being curved, and adds Figs. 5 and 6, in which, the viewpoint of the virtual camera is shown in alternate views to address the Examiner's drawing objection in the Office Action. Additionally, to properly illustrate the claimed subject matter, the solid N has been lengthened to extend entirely through the shadow model M0, such that a portion L, which is excluded from shadow pixels corresponding to a cast shadow on the solid N, are now depicted in accordance with the claims as amended. No new matter is added since the features of the new drawings are clearly supported by the specification and the above noted claims, and involve basic principles of drafting between various views. In view of this addition, reconsideration of the objection to the drawings is earnestly solicited.

The Office Action states that the specification is objected to for various informalities. The specification is amended to correct various typographical, grammatical and idiomatic informalities including those noted in the Office Action. Additionally, the specification is amended to correspond to the figures as amended and supplemented. No new matter is added, since the amendments merely

incorporate, almost verbatim, the language of the claims, with reference to Fig. 4 as amended. Withdrawal of the objection to the disclosure is earnestly requested.

Claims 1, 3, 7, 8, 10 and 14-16 are rejected as obvious over Yasui (US 6,356,264) in view of Foley under 35 U.S.C. §103(a). The applicant herein respectfully traverses this rejection. For a rejection under 35 U.S.C. §103(a) to be sustained, the differences between the features of the combined references and the present invention must be obvious to one skilled in the art.

Independent claims 1, 8, 15 and 16 are each amended to incorporate the language previously recited in claims 3 and 10, which are now canceled. The independent claims now recite that a shadow image is created by shadow-creating pixels corresponding to the front-facing polygons of the shadow model whose distances from the viewpoint of the virtual camera in the simulated three-dimensional space are smaller than the Z-values of the corresponding pixels, but which exclude pixels corresponding to the back-facing polygons of the shadow model whose distances from the viewpoint of the virtual camera in the simulated three-dimensional space are smaller than the Z-values of the corresponding pixels. As such, while pixels of the solid N in the region L, shown in Fig. 4, which correspond in position to a front-facing polygon are farther from the viewpoint than the front-facing polygon, no shadow is represented by the pixels in this region, since the distance between the rearward-facing polygon is smaller than the Z-values of the pixels.

It is respectfully submitted that neither of the cited Yasui and Foley references teaches or suggests this claimed feature, and therefore, the combination of references fails to provide all features of the claims, as properly required for establishing a *prima facie* case of obviousness. Therefore, reconsideration of the rejection of claim 1, 3, 7, 8, 10 and 14-16 and their allowance are respectfully requested.

Claims 2 and 9 are rejected as obvious over Yasui (US 6,356,264) in view of Foley, and further in view of Minami (US 6,542,151) under 35 U.S.C. §103(a). Claims 5 and 12 are rejected as obvious over Yasui in view of Foley, and further in view of Yamaguchi (US 6,529,194) under 35 U.S.C. §103(a). Claims 4, 6, 11 and 13 are rejected as obvious over Yasui (US 6,356,264) in view of Foley, and further in view of Nakatsuka (US 6,433,782) under 35 U.S.C. §103(a). The applicant herein respectfully traverses these rejections.

It is respectfully submitted that each of the additional Minami, Yamaguchi and Nakatsuka references fails to provide what is missing from the Yasui and Foley references as discussed relative to claims 1 and 8, from which these rejected claims depend. Thus, the proffered combination of references fails to teach or suggest all the claim limitations. Therefore, reconsideration of the rejection of claim 2, 4-6, 9 and 11-13 and their allowance are respectfully requested.

Applicant respectfully requests a three (3) month extension of time for responding to the Office Action. Please charge the fee of \$950 for the extension of time to Deposit Account No. 10-1250.

In light of the foregoing, the application is now believed to be in proper form for allowance of all claims and notice to that effect is earnestly solicited. Please charge any deficiency or credit any overpayment to Deposit Account No. 10-1250.

Respectfully submitted,
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enc: Replacement drawing sheet.